April 19, 1927. 1,625,699

A. R. BENTON

HAND OILER

Filed Jan. 7, 1926

Fig. 1.

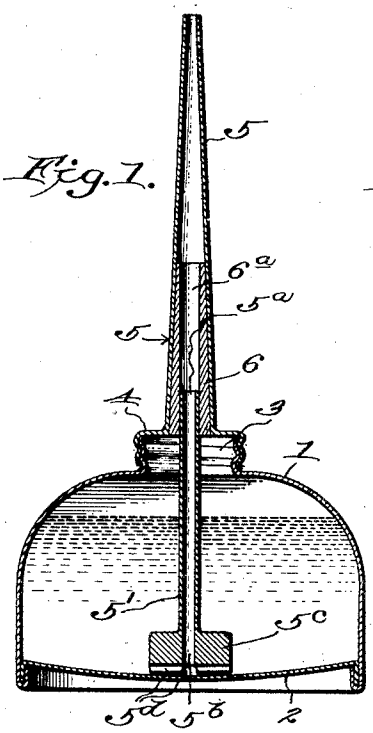


Fig. 2.

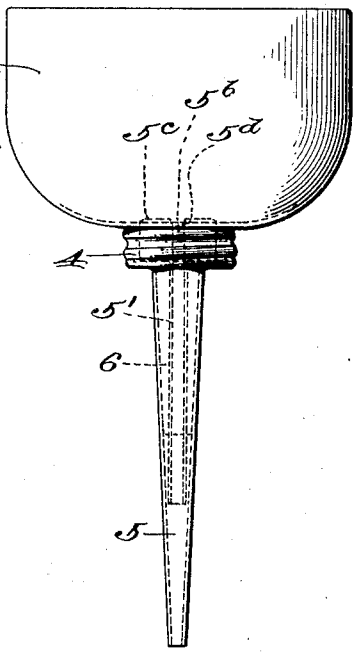
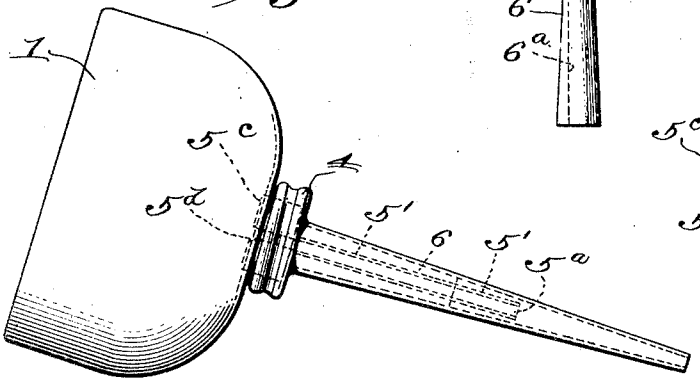
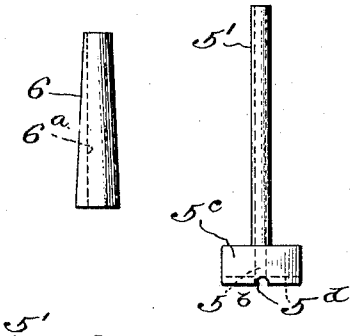


Fig. 4.

Fig. 3.





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UNITED STATES PATENT OFFICE.

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HAND OILER.

Application filed January 7, 1926. Serial No. 79,764.

This invention involves improvements in squirt cans or hand oilers or that type of liquid dispensing cans provided with a discharge spout and a wall portion such as a flexible or elastic bottom that can be depressed by the thumb or fingers to cause liquid discharge from the spout; and the objects and nature of the invention will be readily understood by those skilled in the art in the light of the following explanations of the accompanying drawings that illustrate what I now believe to be the preferred mechanical expression or embodiment of my invention from among other forms, constructions and arrangements within the spirit and scope thereof.

An object of the invention is to provide means whereby a hand oiler or liquid dispensing can having a discharge spout, will be rendered capable of discharging liquid upwardly when the can is held in upright position with the spout upstanding therefrom, without interfering with the capacity of the can to dispense liquid from the spout when the can is held in inclined position or in a reversed position with the spout depending from the can.

With the foregoing and other objects in view, my invention consists in certain novel features of construction, or in combinations and arrangements as more fully and particularly set forth and specified hereinafter.

Referring to the accompanying drawings forming a part hereof:—

Fig. 1 shows a hand oiler embodying my invention, in longitudinal section, the hand oiler being shown in vertical position with its discharge spout upstanding.

Fig. 2 is a side elevation showing the hand oiler in reversed position with the spout depending from the can, dotted lines showing the position of the plunger or extension oil discharge tube.

Fig. 3 is a side elevation showing the hand oiler in tilted position, dotted lines showing the position of the plunger.

Fig. 4 shows in detail, the plunger and bushing separated from each other and from the oiler.

From among the various other forms of spouted liquid dispensing cans or other containers in which my invention can be employed, I have selected for illustration a common, simple form of oil can, or so called hand oiler, although I do not wish to so limit my invention.

The oil can shown embodies a metal container 1, of a common form having flexible resilient or elastic metal bottom wall, 2, that is usually bulged, arched or bowed outwardly and under constant tension or tendency to return to such outwardly bulged form after being pressed inwardly and released. The can is formed with a top-filling mouth or opening surrounded by a longitudinally screw threaded upstanding neck 3, to receive the longitudinally screw threaded closure or cap 4, that normally is removably fitted on the neck tightly closing said opening.

In the example shown, the cap 4, carries the rigid discharge nozzle or spout 5, which is fixed to and opens through the cap. In this instance, the spout is straight and vertical upstanding from the cap when the can is in normal upright position, and is also longitudinally elongated and tapered from its junction with the cap to its small or contracted outlet or discharge nozzle end, although I do not wish to so limit my invention.

Hand oilers of this general type can be employed for discharging oil or other liquid in such situations that permit tilting or reversed positions of the can during the liquid dispensing operation, to bring the inner or receiving end of the spout below the oil level in the can so that the liquid can flow from the can through and discharge from the spout by gravity or under the forcing air pressure in the can caused by depressing the bottom 2. Such hand oilers of this general type cannot, however, lift or discharge or dispense oil or other liquid vertically through the spout when the can is held in upright position with the body of oil below the inner or inlet end of the spout, and it is the purpose of my invention to render it possible for dispensing cans of this general type to dispense liquid vertically from the nozzle discharge end of the upstanding spout when the can is held in normal vertical position.

To accomplish this result, I provide the hand oiler with an inner spout extension that provides the sole air and oil inlet to the spout and that locates this oil inlet to the spout always below the oil level in the

can or always within the body of oil, whatever the position of the can whether tilted, vertical or reversed.

By this arrangement, a sudden or other increase in pressure within the can as caused by depression of a flexible wall portion of the can, such as flexible or resilient bottom 2, will force the oil in the can to take the only possible path of release provided, namely, upwardly through said extension and the spout and upwardly from the spout discharge nozzle. The air in the can is trapped above the body of oil and finds no outlet as the inlet to the spout is completely immersed in the oil, and the increase in pressure in the can is sufficient to lift oil through the spout and cause upward discharge of a jet of oil from the spout nozzle.

Under various conditions, it is convenient or even necessary to supply lubricant to machinery or other parts where it is not possible to hold a hand oiler in reverse or tilted positions. For instance, this situation often arises where working in a pit under an automobile or under an automobile elevated on a truck or track.

In the particular embodiment illustrated, this inner spout extension is in the form of a straigt tube 5′, having sliding telescoping relation to the spout, the bore of the tube having no outlet except at its outer end 5^a, within the spout and no inlet except at its inner end 5^b, within and covered by the body of liquid within the can.

This tube is longitudinally arranged within the longitudinal bore or liquid passage of the spout with a freely slidable running fit to prevent air or liquid leakage through the spout exteriorly of the tube. The capacity of the tube to freely slide longitudinally is facilitated by the lubricating quality of the film of oil on the exterior surface of the tube which also aids in maintaining the air tight joint between the tube and surrounding interior surfaces within the spout. The length of the tube materially exceeds the distance from the can bottom to the inner end of the spout so that a substantial length of the tube will extend upwardly in the spout when the tube is at its limit of downward movement in the can, and so that the outer end of the tube will preferably terminate short of the nozzle discharge end of the spout when the tube is at its limit of outward movement within the spout.

The tube is freely slidable longitudinally of the spout, by gravity as its center of gravity changes due to shifting positions of the can to and from the upright vertical position, and hence to render the tube quickly responsive to such changes in gravity positions, I preferably weight the tube. For instance, I show the inner end of the tube that always remains within the can, formed with radially enlarged end head 5^c, thus weighting the tube at its inner end, and providing a stop to engage the cap and limit the outward sliding movement of the tube, and engage the can bottom and limit the inner or downward movement of the tube. The end head 5^c, is formed of such a diameter and thickness or depth as to fit within and occupy the filling opening and neck 3, so that, in inverted position of the can with the tube at its outward limit of movement in the inner wall of head 5^c will be substantially flush with or spaced outwardly (downwardly) in filling neck 3, from the top wall of the can to permit of complete discharge or emptying of the oil in the can through tube 5′ and its inner end 5^b, as will be clear by reference to Figs. 2 and 3 of the accompanying drawings.

At its bottom face, this head 5^c, is formed with cross grooves 5^d, opening into the inlet end of the tube bore to provide for free passage of the oil to the bore when the head rests on the can bottom.

When the can embodying my invention is held in upright position, the tube is at its limit of downward movement with its inlet end immersed in the oil, and if the bottom 2 should then be depressed, the pressure thereby resulting within the can will cause upward discharge of the oil from the spout as hereinbefore described. If the can is tilted or reversed, the tube will slide outwardly by gravity to its limit of outward position with the inlet end of the tube covered by the oil, so that oil will discharge by gravity or under pressure from the spout nozzle.

My invention presumes that the internal formation of the bore of the oil can spout, provides the necessary length of uniform cross sectional dimensions, to cooperate with the sliding extension tube in forming an air tight running fit exteriorly of the tube, as hereinbefore explained.

To adapt my invention to hand oilers of the squirt type and the like, now on the market, wherein the spout bores longitudinally contract or taper toward their discharge nozzle ends about as shown, I provide a filler or bushing 6, which can be inserted in said spouts through their inner ends with the plungers or extension tubes 5.

Each bushing 6, is in the form of a tube exteriorly tapered longitudinally to fit and wedge within the nozzle and assume a fixed position therein forming an air tight joint between the inner nozzle surface and the outer surface of the bushing. The longitudinal bore 6^a, of the bushing corresponds in cross sectional dimensions to the corresponding exterior dimensions of the plunger or extension tube therein to provide the freely slidable running fit desired.

It is evident that various changes, modifications and variations can be resorted to

without departing from the spirit and scope of my invention and hence I do not wish to limit myself to the exact disclosure hereof.

What I claim is:—

1. A hand liquid dispenser can having its discharge spout provided with an extension within the can, said extension being freely slidable by gravity within the spout and constituting the only inlet to said spout.

2. A hand oil can and the like, having a discharge spout provided with a tubular extension within the can providing the liquid discharge outlet from the can to the spout, said extension telescoping and forming a sealing fit with said spout and freely slidable by gravity therein to maintain said outlet within the liquid in the can with the can in upright position.

3. A hand oil can and the like, having a discharge spout provided with a weighted tubular extension providing the fluid discharge outlet from the can to the spout and freely movable by gravity to positions in the can to maintain said outlet immersed in the liquid in the can when in upright or reversed vertical positions.

4. A hand liquid dispensing can having a depressible wall and a discharge spout, a bushing fitted within said spout and a tube fitting said bushing and extending into the can and providing the liquid inlet from the can to the spout, said tube being freely slidable by gravity longitudinally of the spout in and forming a sealing fit with said bushing to keep said inlet covered by the liquid in the can when in upright or reversed vertical positions.

5. Means or application to a hand oil can and the like, to render said can capable of squirting liquid from the discharge nozzle of the can spout when said can is in vertical position with the spout upstanding, the said means embodying a bushing exteriorly formed to fit longitudinally within a can spout and provided with a longitudinal bore therethrough, in combination with, a tube fitting said bore with a running fit and freely slidable by gravity longitudinally therein, the inner end of the tube extending beyond the inner end of the bushing to extend into a can and formed with an inlet to be maintained in the liquid in the can.

6. A hand oil can and the like, having a discharge spout provided with a tubular extension providing the liquid discharge outlet from the can to the spout, said extension telescoping and forming a sealing fit with the spout and freely slidable by gravity therein to maintain said outlet within the liquid in the can when in upright or reversed vertical positions, and an enlarged head on the inner end of said extension within the can to form a weight for the slidable extension.

7. A hand oil can and the like having a discharge spout provided with a tubular extension slidably mounted in and forming a sealing fit with said spout and freely movable by gravity therein, said extension extending into the can and provided with an enlarged head at the inner end thereof within the can forming a weight thereon, the enlarged head engaging and resting upon the bottom wall of the can with the spout in upright position and formed with grooves on its lower face providing oil passages from the can to the lower end of the extension between the head and can bottom wall.

Signed at Beverly Hills, California, this 20th day of October 1925.

ARTHUR R. BENTON.